

REMARKS

In the second Office Action, the Examiner rejected claims 1, 2, 5, 7, 9, 11, 13, 17, and 18 under 35 USC §102(b) as being anticipated by US 5,485,155 to Hibino. The Examiner rejected claims 6, 8, 10, 12, and 14 under 35 USC §103(a) as being unpatentable over Hibino in view of US Publication 2003/0222772 to Laufer. The Examiner rejected claims 15 and 16 under 35 USC §103(a) as being unpatentable over Hibino in view of JP 05297141 to Azusazawa et al. The Examiner objected to claims 3 and 4 as being dependent upon a rejected base claim indicating they would be allowable if appropriately rewritten.

Applicant has cancelled claims 3-4 and 7-10 and added new claims 19-20 based on the allowable subject matter of claims 3-4. Claims 1-2, 5-6, and 11-20 are currently pending in this application. Reconsideration and re-examination of the application as amended is respectfully requested.

Rejection Under 35 USC §102(b)

The Examiner rejected claims 1, 2, 5, 7, 9, 11, 13, 17, and 18 under 35 USC §102(b) as being anticipated by US 5,485,155 to Hibino. Applicants respectfully disagree and traverse the Examiner's rejection.

As described in the specification and recited in independent claims 1, 11, 13, and 18-20, Applicants' invention includes systems and methods for detecting an object that emit one or more light pulses, receive a reflection of the emitted pulse(es) and adjust sensitivity based on the elapsed time after emission or elapsed time between emission of the pulse(es) and receiving of the reflection(s). By adjusting the sensitivity as disclosed and claimed, Applicants' invention can detect objects at relatively large distances while also detecting objects through fog. US 5,485,155 to Hibino does not disclose or suggest adjusting sensitivity based on elapsed time as disclosed and claimed by Applicants.

In contrast to Applicants' claimed invention, Hibino discloses the use of an automatic gain amplifier 13 (see Fig.1 and related description) to adjust the gain or multiplier of the received signal so that the voltage level is within the "window" voltage, i.e. between V1 and V2, as determined by window comparator 23. This allows Hibino to boost the relatively weaker reflected signal from smaller objects that may be closer (like a motorcycle) so it has a similar peak value as the signal reflected from larger objects (like a car) that may be farther away. This feature of Hibino is illustrated

and explained in greater detail with reference to Fig. 3. As shown in blocks 250, 255, 260, and 265, the gain is adjusted (increased or decreased) so that V_{max} is between V_1 and V_2 . As described in Col. 7, ll. 45-50, "In other words, these steps 250-270 realizes AGC (automatic gain control) so as to adjust the gain of the variable gain amplifier 13 to satisfy a relation $V_1 < V_{max} < V_2$." There is no disclosure of adjusting sensitivity (by increasing or decreasing the gain in this case) based on elapsed time from the emission or elapsed travel time of the emitted pulse as disclosed and claimed by Applicants.

The only reference to elapsed time in Hibino refers to the three (3)- 16 msec intervals, shown and described with reference to Fig. 6, which are used to alternate measurements between the AGC measurement and the full gain measurement. As illustrated in Fig. 6, the gain is constant for the full gain measurement intervals (t_{11} - t_{22} and t_{44} - t_{55}) and clearly does not anticipate Applicant's claimed invention which includes adjusting sensitivity of the indicating step based on elapsed time. While Hibino teaches adjusting the gain during the AGC measurement intervals (t_{22} - t_{33} , t_{55} - t_{66}), the gain (one way to adjust sensitivity) is adjusted so that V_{max} is between V_1 and V_2 as described above, and not based on the elapsed time as disclosed and claimed by Applicants.

For the reasons stated above, Applicants respectfully submit that Hibino fails to anticipate Applicants' claims and requests the Examiner to withdraw the rejection under §102.

Rejections Under 35 U.S.C. §103(a)

The Examiner rejected claims 6, 8, 10, 12, and 14-16 under 35 USC §103(a) as being unpatentable over the primary reference of US 5,485,155 to Hibino in view of US 2003/0222772 to Laufer, and JP 05297141 to Azusazawa et al. Applicants respectfully disagree and traverse the Examiner's rejections.

As stated above and incorporated here by reference, the primary reference of Hibino fails to disclose adjusting sensitivity based on time as disclosed and claimed by Applicants. Because the Examiner relies on Hibino as the primary reference in each of the obviousness rejections, and the secondary references of Laufer and Azusazawa et al. also fail to disclose or suggest this feature, the proposed combinations fail to teach or suggest all the features of Applicant's claimed invention and the rejection should be withdrawn.

In addition to the reasons stated above, Applicants note that Hibino fails to recognize the problem of detecting objects through fog or similar environmental conditions as disclosed by Applicants and fails to suggest a solution similar to Applicants' claimed invention. As such, there would be no motivation for one of ordinary skill in the art to modify Hibino to adjust sensitivity based on elapsed time as disclosed and claimed by Applicants and no motivation to combine such modified teachings with those of Laufer or Azusazawa.

For the reasons above, Applicants respectfully submit that the invention as claimed is patentable over the prior art applied by the Examiner and the rejections under 35 USC §103 should be withdrawn.

Summary

Applicants have made a genuine effort to respond to each of the Examiner's rejections and objections to advance the prosecution of this case. Applicants respectfully submit that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested. If any further amendment is necessary to advance prosecution and place this case in allowable condition, the Examiner is courteously requested to contact the undersigned by fax or telephone at the number listed below.

Other than the one-month extension fee, no additional fee is believed to be due based on the filing of this response. However, please charge or credit any fee deemed necessary for the filing of this Amendment to Deposit Account 06-1510 (Ford Global Technologies, LLC). If there are insufficient funds in this account, please charge the fees to Deposit Account No.06-1505.

Respectfully submitted,



David S. Bir
Registration No. 38,383
Filed Under Rule 34(a)

Date: October 18, 2004

Bir Law, PLC
45094 Middlebury Ct.
Canton, MI 48188-3215
734-981-5646
Fax: (734)468-4257